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United States
Department
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Forest Service

Pacific
Northwest
Region

1990

Summary
Final Environmental Impact Statement

Land and Resource Management Plan

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Summary

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Summary of the FEIS

Introduction

The Final Environmental Impact Statement (FEIS) discusses eight alternative strategies for management of the Mt. Hood National Forest, one of which is developed into the Land and Resource Management Plan (Forest Plan). The Forest Plan will be in effect and guide management of the Forest for 10 to 15 years, unless revised sooner. The analysis presented, however, covers a planning period of 50 years to evaluate and display long term effects. The Plan, when implemented, will assure multiple use, sustained yield and protection of Forest resources.

The Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan were released for public review and comment in January, 1988. This FEIS and Forest Plan were developed in response to those comments and incorporates many suggestions made by the public and other agencies. Changes that were made between the DEIS and FEIS are described throughout the document.

The Forest Plan for the Mt. Hood National Forest is contained in a separate document. The FEIS and Forest Plan are to be treated as companion documents.

The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the Mt. Hood National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The Forest Plan:

- Establishes Forestwide multiple-use goals and objectives;
- Establishes Forestwide standards and guidelines for future activities;
- Establishes management area direction, including management area prescriptions and standards and guidelines applying to future management activities in that management area;
- Establishes the allowable sale quantity for timber and identifies land suitable for timber management;
- Establishes monitoring and evaluation requirements;
- Establishes nonwilderness multiple-use allocations for the Olallie/Mt. Jefferson roadless area that was reviewed under 36 CFR 219.17 and not recommended for wilderness designation.

The Forest Plan embodies the provisions of the National Forest Management Act, the implementing regulations, and other guiding documents. Land use determinations, prescriptions, and standards and guidelines constitute a statement of the plan's management direction; however, the project outputs, services, and rates of implementation are dependent on the annual budgeting process.

The Forest Plan will be revised on a 10 year cycle, or at least every 15 years. It may also be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly or when changes in policies, goals, or objectives would have a significant effect on Forest-level programs. The Forest Plan also may be amended.

This document is a general summary of the entire FEIS. It emphasizes the issues and concerns raised by the public and other local, State, and Federal agencies, regarding the management of the Mt. Hood National Forest. The summary will briefly describe the purpose and need for the FEIS, and give a brief description of the affected environment, the issues, the alternatives, and

the environmental consequences of implementation of the alternatives.

Purpose and Need

The purpose of the Forest Plan is to direct all natural resource management activities on the Forest. Preparation of the Forest Plan is required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA), plus the associated National Forest System Land and Resource Planning Regulations (36 CFR 219).

The preparation of an Environmental Impact Statement disclosing a preferred alternative and a broad range of additional alternatives is required by the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality (CEQ) Regulations (40 CFR 1500).

The Forest Plan has been organized around some primary questions about forest management. These questions were raised by Forest Service managers, industry representatives, environmentalists, and others and became the Issues, Concerns, and Opportunities (ICOs) which directed the planning process.

The planning process specified in the NFMA implementing regulations and the Environmental Analysis process specified in the CEQ regulations were used in developing this FEIS and the accompanying Land and Resource Management Plan (Forest Plan). The planning steps employed are:

- Identification of purpose and need.
- Preparation of planning criteria.
- Inventory data and information collection.
- Analysis of the Management Situation.
- Formulation of alternatives.
- Estimated effects of alternatives.
- Evaluation of alternatives.
- DEIS with Preferred Alternative and Proposed.
- Plan released for public comment.
- FEIS completed and Plan approved; Record of Decision signed.
- Forest Plan implementation, monitoring, and evaluation.

The results of the Environmental Analysis are documented in this FEIS. The Environmental Analysis ensures that environmental information is available to public officials and citizens before decisions are made and actions taken.

The Affected Environment

The Mt. Hood National Forest is in north central Oregon. It is bounded by the Columbia River on the north, by the Willamette National Forest and the Warm Springs Indian Reservation on the south and southeast. To the west, the Forest meets the Willamette Valley and on the east it joins the wheat fields and range lands of eastern Oregon. There are 1.1 million acres within the Forest boundaries. They lie primarily in Clackamas, Multnomah, Hood River, and Wasco Counties. These are the Counties most influenced by the management of the Forest. The Forest Supervisor's Office is in Gresham, Oregon, 15 miles east of Portland.

A full account of the Forest's environmental components is provided in Chapter III of the FEIS. Plans for uses of the Forest have been developed against a backdrop of its environment. This environment provides opportunities, and imposes limitations as well.

The Forest straddles the Cascade Mountain Range and includes the moist western slopes and the drier east side. The elevation of the Forest ranges from 65 feet above sea level on the Columbia River to the summit of Mount Hood, 11,235 feet high. A diverse environment results from the influences of climate and elevation. The Forest's most widespread resource component is its large volume of standing timber that grows on the productive forest lands. These stands contribute raw materials to the forest products industry and provide habitat required by wildlife species. The forested mountains are also an extremely important source of water for use by fish and wildlife, and for human consumption.

The Forest's natural environment provides a number of recreational attractions, including Mount Hood, the Columbia Gorge, numerous mountain lakes and streams, and a wide variety of plants and animals. These amenities combine with proximity to the Portland Metropolitan Area, to make the Forest a popular destination for outdoor recreation activities. Much of the Forest is highly developed with roads built primarily for logging. These roads, along with several major highways, provide access for recreational use of most of the

Forest. The Forest also includes six Wildernesses established by Congress. These, and other undeveloped areas, provide opportunities for people to experience solitude in a natural environment.

Public Issues

People look upon the resources of the Forest differently, depending upon their individual interests and needs. They would like to see the Forest managed in ways that satisfy these needs. While such wishes are understandable, they raise conflicting Public Issues that must be addressed in formulating the Forest Plan.

What are the relevant Public Issues? Obtaining the answers to that question led to an extensive and continuing process utilizing public meetings, newsletters, correspondence, and local news media reporting. It included personal contacts by Forest Service personnel. The process incorporated comments and suggestions from a wide cross-section of individuals and groups such as the Sierra Club, Northwest Forestry Association, Oregon Environmental Council, Mt. Hood Forest Study Group, and the Columbia River Inter-Tribal Fish Commission. Other contacts included adjacent landowners and National Forests, agencies of State and local governments, local employers, and Native Americans.

Early Phase

The Forest Planning process began in September of 1979. One of the first steps taken was that of trying to define, identify and focus attention on the important items to be considered as the Forest began the task of preparing a Forest Plan. Those items are now called public issues, management concerns, and resource use and development opportunities (ICOs).

A preliminary list of ICOs was included in informational brochures, distributed at public meetings and mailed to the public. The Mt. Hood National Forest held three informal meetings early in the process to help identify additional public issues, discuss management concerns and explore resource opportunities.

The dates and locations of our early public meetings were:

- November 17, 1979 at Mill City High School, Mill City, Oregon.
- November 28, 1979 at the Mt. Hood Supervisors Office, Gresham, Oregon.
- November 29, 1979 at the Hood River Inn, Hood River, Oregon.

Governmental agencies, local government officials, interest groups, Native American tribes, and individuals were consulted during this early development phase. Approximately 50 responses relating to the development of ICOs were received.

Revisions to ICOs - 1984

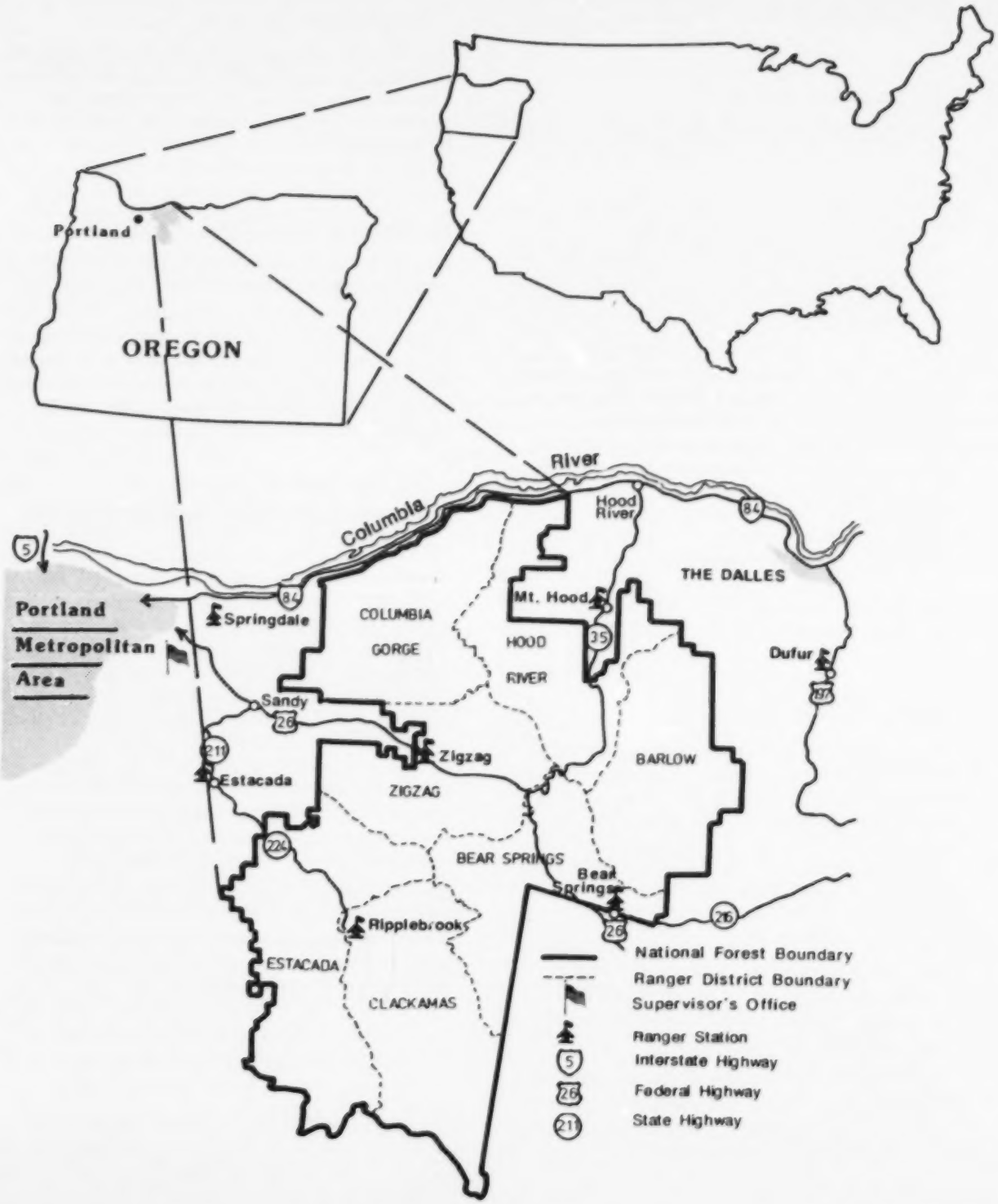
Over the intervening 4 years, the Forest Interdisciplinary Planning Team continued to review and make changes to the issues in order to keep them current. Through periodic meetings with groups, individuals, and agencies and as a result of changes in policy and procedures, some of the issues were modified. It is around this revised set of issues that the alternatives contained in the Draft EIS were designed and analyzed.

Revisions to ICOs Between Draft and Final

Analysis of the public comment confirmed that the public issues, management concerns, and resource opportunities identified in the DEIS are still valid. However, in response to public input, the list of public issues has been modified. Twelve individual issues, including two new issues, which focus on the supply of developed recreation and deer and elk management were identified. Other issues were modified or combined to reflect a shift in emphasis as a result of public comment. Appendix A describes the modifications in detail. Appendix J (Response to Public Comments) gives a detailed summary of the public comment, and describes how the Forest has attempted to respond to public input.

Over 5,000 pieces of mail incorporating approximately 80,000 comments were received concerning the DEIS. Most of the issues are related to some degree. Management activities that affect one resource will usually affect a number of other resources.

Map S-1 Mt. Hood National Forest Location Map



Issue 1: Level of Timber Supply on the Mt. Hood National Forest

There is a wide divergence of opinion concerning the production of timber from this Forest. The timber industry is an important part of the local and regional economic base, and the Forest has historically supplied significant amounts of timber. There is concern by many that current sell program levels cannot or will not be maintained. As a result, local communities will suffer economic hardship.

Other individuals believe that timber harvests should be decreased in order to maintain or enhance other resources. They are concerned about the negative impact of timber harvesting on fish habitat, older forest wildlife habitat, soils, water quality, unroaded recreation, and scenic quality.

Perhaps more than any other public issue, this one affects and is affected by the resolution of other resource issues. The most significant effect of other resource uses on timber is the classification of land as nonsuitable for timber management. Managing for fish habitat, older forest wildlife habitat, soil protection, water quality, wilderness, unroaded recreation, undeveloped areas, and natural research areas all reduce the number of acres available for intensive timber management.

Harvest rotation lengths, fertilization, thinning, and species mixture all are sub-components of this issue. Short rotations are generally more economically efficient than longer ones but can have adverse effects on other resources such as fish and wildlife habitat. Fertilization can improve yields per acre, but effects on fish habitat and watersheds may not be acceptable. Thinning of timber stands, which leads to optimum timber growth, may not be cost efficient. The species mixture has direct effects on other resources including wildlife habitats.

Other factors involved with this issue include the timing of fuel management projects, and the location, density and design of forest roads. Protecting soil productivity and assessing cumulative impacts to maintain land stability are also important considerations for this issue.

Issue 2: Community Stability

Forest management affects the jobs, incomes, and lifestyles of local residents in nearby communities through economic ties. Forest outputs have traditionally provided a base for the local forest products industry. Many communities are concerned about their timber harvest commodity receipts, and the payments made to their communities in lieu of taxes. In addition, the Forest provides resources that are important to local residents even though there is no direct economic tie. Local residents place a high value on amenities such as clean water, visual quality, and wildlife, and on personal uses such as firewood cutting and recreation.

The lifestyles of some residents and structure of certain communities are directly dependent on Forest outputs and expenditures. Small communities near the Forest, especially those on the east side of the Forest, are most affected. There is a concern that the Forest supply timber for local industries to sustain jobs and lifestyles.

On the other hand, intense timber harvest may conflict with other resources which influence other jobs, lifestyles and communities. This concern includes how changing recreational opportunities, wildlife and fish habitat, and visual quality will affect personal uses of the Forest as well as local tourist industries.

Issue 3: Maintenance and Distribution of Old Growth

Concern about the future of old growth stands on the Forest has risen sharply over the last few years. Old growth is now valued for its ecological diversity, recreation, scientific, wildlife habitat, and aesthetic qualities. Many believe that old growth forests are declining too rapidly, because they believe timber harvest rates exceed a sustainable level.

Others value old growth as a source of timber, contending that enough old growth has already been designated for preservation through "reserved" lands. There is also concern that potential volume production is lost due to slow growth or decay and mortality in old growth stands.

Protecting old growth would reduce the volume available for timber harvest, while the harvest of old growth reduces the amenity values associated with old growth.

It is estimated that there are approximately 345,300 acres of old growth currently existing on the Forest.

Issue 4: Viable Populations of Spotted Owls and Management Indicator Species

There is a concern that the Forest Service recognize declining or "diminishing" species and respond by providing high levels of habitat protection. Others are concerned that the cost of providing habitat, in terms of reduced timber harvest, and the subsequent effects on

economic stability in nearby communities, may be unacceptable.

The northern spotted owl is a mature forest and old growth habitat associated species that lies at the center of this controversy. The spotted owl was, in July 1990, listed as Threatened Species by the U.S. Fish and Wildlife Service. The opinions of groups and individuals vary on what quantity of habitat should be maintained to insure the continued survival of the spotted owl.

The issue of maintaining viable populations of spotted owls and other management indicator species affects a number of other resources and issues, but is most heavily intertwined with timber production and harvest, roading, and recreation. Depending on the manner, location, and intensity of harvest, logging can have a detrimental effect on wildlife habitat. Harvesting of old growth timber may threaten the species of animals and plants dependent on it. Increased roading may increase harassment of wildlife and may reduce their ability to make use of available habitat.

While wildlife are an attraction and benefit to recreational use of the Forest, too much recreational use can be detrimental. Some species of wildlife are very tolerant of human presence, some are very intolerant and a small amount of human activity will cause them to leave the area. Water pollution and harassment of animals can occur. These harmful effects are more apt to happen in heavily used or developed areas.

Issue 5: Conflicts Between Management Activities and Competing Recreational Activities

Conflicts arise between recreational uses and other management activities, as well as between different types of recreation uses. Management activities which disturb the natural features can conflict with many recreational uses. For example, timber management and associated road building activities may preclude the provision of primitive unroaded recreational experiences.

The potential for conflict also exists between different type of recreational uses. Primative recreational experiences such as backcountry hiking may be incompatible with use of off-road vehicles. Where solitude is needed to fulfill recreational needs, large numbers of people or the use of machines by others can cause conflicts.

There is a concern that much more of the Forest land base needs to be placed in allocations which provide for or do not conflict with recreational activities. Others are concerned that the cost of providing recreational experiences, in terms of reduced timber harvest, and the subsequent effects on the economic stability of nearby communities, may be unacceptable.

This issue is closely tied to the issue of visual quality. Many of the recreational visitors to the Forest have expressed considerable concern for its visual appearance. The high recreational values of the forest are directly linked to its beautiful scenery. However, providing a pleasing appearance may be in conflict with the management of other resources. In addition, providing primative recreational experiences may also benefit various species of wildlife.

Issue 6: Maintenance and Enhancement of Scenic Quality

Landscapes seen from areas that are heavily used by the public, such as roads, rivers, or developed recreation sites, are called scenic viewsheds. Viewsheds are more sensitive than other areas because the scenic quality may significantly affect the recreational experience of those viewing it.

As timber harvest and road construction activities enter new areas, changes in the scenic resource become more apparent. The scenic quality issue revolves around the degree of protection scenic values should be given and the cost and impacts of visual resource management on other Forest activities. In particular, reductions in timber harvests and associated costs of implementing visual management activities are of concern.

Many people find changes to the natural setting objectionable and feel that most or all of the viewsheds should be maintained in a natural character. From a different perspective, some people feel that reducing timber harvests on major portions of the Forest is not justified by the resulting harvest volume reduction.

Protecting visual quality requires careful management of timber activities, including rotation lengths, harvest unit design, harvest methods, and species mix. This may reduce timber outputs and increase costs. However, since this lessens the intensity of ground-disturbing activities, it may benefit fish, wildlife, and recreation.

Issue 7: Disposition of the Remaining Roadless Areas

Public comment on the DEIS indicates strong disagreement about the future management of the remaining 118,000 acres of unroaded areas. Timber interests feel that removing more land from the timber base for undeveloped recreation is unnecessary and unjustified. Others feel that unroaded opportunities are dwindling and these areas should remain roadless, thus providing protection for watersheds, habitats for wildlife and opportunities for backcountry recreational experiences.

There are many resource interactions involved. Developing some roadless areas could increase timber harvests, as well as opportunities for development of other resources. Retaining some roadless areas in an undeveloped condition provides; diversity of Forest ecosystems, habitat for sensitive plant and wildlife species, water quality, opportunities for semiprimitive recreation, old growth, and retains options for future land use decisions.

Issue 8: Diminishing Supply or Availability of Resources Traditionally Used in Native American Religious and Cultural Life

Native Americans (e.g. Confederated Tribes of the Warm Springs) who reside in the Mt. Hood area have a vital interest in how the Forest is managed. Native Americans have traditionally used lands that are now within the Mt. Hood National Forest for hunting, fishing, gathering plant resources, and religious ceremonies. These tribal groups have raised the issue of decreases in availability of the forest products that they have traditionally used in religious and cultural practices. These products range from anadromous fish and wildlife, such as salmon and elk, to a variety of plant resources, such as huckleberries, cedar and alder.

These groups have expressed a concern that years of land management to promote timber may have reduced the supply and accessibility of the resources they value.

The continued use of traditional resources by Native Americans has been recognized in the development of this plan. Native American rights will continue to be a part of on going Forest management. See Forestwide Human Rights Standards (Forest Plan, Chapter 4).

Issue 9: Maintenance and Rehabilitation of Fish Habitat and Water Quality

The demands for maintenance and rehabilitation of fish habitat and water quality have steadily increased in the last decade.

The productive capability of fish habitat and the quality of water are closely linked. Both are heavily influenced by the overall condition of the watershed and are specifically affected by conditions in riparian areas.

Due to the wide distribution of riparian and aquatic habitats across the Forest, the management of fish and water resources frequently involves interactions with a variety of other resources. Activities or resource programs which do not significantly disturb the ground, such as wilderness management, visual and wildlife management, are compatible or complementary with fish and water management. Activities which can and sometimes do affect the riparian zone, such as timber management activities, road construction, range management, energy development, and irrigation are to varying degrees competitive. These activities can reduce the capability of the habitat to produce fish as well as reduce water quality.

Preservation of water quality is an important issue to many residents near the Forest, as well as many of those who use the Forest for recreation or irrigation. A very large number of people depend on water flowing from the Forest's watersheds.

Many groups and individuals believe that the maintenance of anadromous fish habitat and the restoration of damaged fish habitat should be top priorities of the Forest Service.

Issue 10: The Supply of Developed Recreation Site Opportunities

The Mt. Hood National Forest can be considered an urban forest and is one of eleven forests initially identified by the Forest Service as meeting the urban forest characteristics of being located within 50 miles of populations greater than 1 million people and demonstrating unique management challenges. It serves as the "backyard" for many residents of the Portland metropolitan area and the Willamette Valley. According to the Oregon State Department of Parks and Recreation, the Forest is nearly the sole provider of specific types of

recreational opportunities, and the major provider of many others.

This issue was raised in individual responses to the Draft Forest Plan. They expressed concern that the Forest is not increasing the number of developed sites at a rate which will accommodate a growing tourism trade.

Many groups feel that the construction and reconstruction of additional campground facilities should be high on the Mt. Hood's list of priorities. Facilities and vegetation in some developed sites, such as highly used campgrounds, are deteriorating. Some sites have been closed and many facilities are in poor condition.

Issue 11: Wild, Scenic, and Recreational Rivers

Some people believe that all of the rivers and many streams on the Forest should be included in a preliminary administrative recommendation to Congress for consideration under the Wild and Scenic Rivers Act. Other people are strongly opposed to the recommendation of some or all rivers and stream segments.

The 1988 Oregon Omnibus Wild and Scenic Rivers Act designated five rivers on the Mt. Hood National Forest. These rivers are the Clackamas River, White River, Roaring River, Salmon River, and Sandy River.

The public comment by the Governor's Task Force, Oregon Rivers Council, Sierra Club, and other individuals expressed concern regarding the process used to recommend rivers for designation. In response, the Forest decided to conduct an Eligibility study on 12 additional rivers. These rivers were specifically identified in the public comment process.

The eligibility process and evaluation criteria that was used for river selection was endorsed by the Oregon Department of Parks and Recreation and Oregon Rivers Council. Of the 12 rivers which were studied, all or parts of 11 rivers were found to be eligible.

Suitability studies will begin when the Forest Plan is complete.

A portion of the East Fork of the Hood River is located within the Mt. Hood Meadows ski area permit boundary. The Mt. Hood Meadows master planning effort had potential project implementation needs which required the completion of the Suitability Study for that river. For this reason, the Forest completed its study of the East Fork Hood River as part of the Forest Planning process. It was found not suitable.

Issue 12: Deer and Elk Management

The Department of Fish and Wildlife, environmental organizations, tribal groups, and private citizens feel that the preferred alternative did not adequately provide for the management of deer and elk species in timber emphasis areas. They believe that herd management objectives, cover forage ratios, forestwide road densities, and dispersion of harvest units were not adequately analyzed. The removal of land from timber emphasis to meet the needs of deer and elk will cause a reduction in the Forest's harvest level.

Alternatives Including the Proposed Action

Eight alternatives were developed in detail. The alternatives, including the proposed action (the Preferred Alternative) are based on the identified issues, concerns, and opportunities. Each alternative is designed to achieve specific goals and objectives. Each is a unique combination of land uses, forest management activities, and schedules designed to address, mitigate, or resolve the planning issues.

Table S-1 Management Area Acres by Alternative

Management Areas	Alternative							
	NC	A	C	E	F	H	I	O (Preferred)
A-2[1] Wilderness	198,200	198,200	198,200	198,200	198,200	198,200	195,050	198,200
A-3 Research Natural Areas	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150
A-4 Special Interest Areas	26,950	29,550	25	36,500	40,550	30,300	31,550	38,800
A-5 Unroaded Recreation	850	0	0	7,100	48,000	15,850	52,250	16,550
A-6 Semi-Primitive Roaded Recreation	0	0	0	2,600	7,850	0	2,000	5,000
A-7 Old Growth	0	0	0	0	2,000	283,200	10,700	2,000
A-8 Spotted Owl	0	52,950	52,950	52,950	52,950	86,750	88,750	68,050
A-9 Key Site Riparian	0	10,400	11,550	14,500	14,700	14,700	14,000	14,700
A-10 Developed Recreation	650	650	1,700	650	1,700	1,700	1,700	1,700
A-11 Winter Recreation	7,250	7,250	7,600	7,600	9,400	8,950	5,800	11,700
A-12 Outdoor Education	100	100	100	100	100	100	100	100
A-13 Bald Eagle	700	0	0	0	50	700	700	700
Subtotal A	226,450	287,950	290,975	309,050	384,350	609,800	401,750	344,650
B-1 Wild, Scenic, & Rec. Rivers	33,550	18,350	18,100	17,100	15,950	7,750	13,950	13,650
B-2 Scenic Viewshed	160,700	108,100	0	92,650	184,900	89,350	8,800	113,650
B-3 Roaded Recreation	0	0	0	1,550	17,200	0	0	9,550
B-4 Pine Oak Habitat	0	0	0	10,050	15,700	10,850	21,300	11,550
B-5 Pileated Woodpecker/Pine Marten Habitat	0	49,850	51,050	47,450	43,300	19,300	39,400	44,950
B-6 Special Emphasis Watershed	0	0	0	30,200	48,150	30,100	37,800	78,600
B-7 General Riparian	0	103,650	107,150	98,200	97,950	50,700	83,750	91,550
B-8 Earthflow	0	0	0	17,800	0	11,800	16,950	25,800
B-9 Wildlife Visual	0	0	0	3,900	0	0	52,700	3,750
B-10 Winter Range	0	0	0	0	3,900	7,450	71,450	8,700
B-11 Summer Range	0	0	0	0	2,250	5,000	191,225	5,150
B-12 Backcountry Lakes	0	0	0	0	3,900	0	0	3,900
Subtotal B	194,250	279,950	176,300	316,900	421,200	212,100	536,825	410,900
C-1 Timber Emphasis Subtotal C	517,875	370,675	501,300	312,625	153,025	116,875	0	183,025
DA1 Bull Run Drainage	39,925	39,900	0	39,900	39,225	38,425	38,425	38,025
DA2 North Buffer	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450
DA3 Research Natural Areas	6,900	4,400	4,400	4,400	4,400	4,400	4,400	4,400
DA8 Spotted Owl	0	11,900	11,900	11,900	11,900	12,950	12,950	13,300
DA6 Key Site Riparian	0	1,050	900	1,350	1,350	1,100	1,100	1,050
DA13 Bald Eagle	75	0	0	0	75	75	75	75
DB2 Scenic Viewshed	1,500	950	0	0	950	950	950	950
DB5 Pileated Woodpecker/Pine Marten Habitat	0	6,950	6,950	6,950	6,950	6,950	6,950	6,950
DB7 General Riparian	0	10,800	10,800	10,800	10,800	10,800	10,800	10,800
DB8 Earthflow	300	50	0	0	50	50	50	50
DC1 Timber Emphasis	21,250	13,950	54,900	14,450	13,950	13,950	13,950	14,050
Subtotal D[2]	91,000	91,000	91,000	91,000	91,000	91,000	91,000	91,000
EA1 Scenic Area	31,050	16,400	16,400	16,400	16,300	15,100	15,100	15,500
EA4 Special Interest	75	75	75	75	75	75	75	75
EA8 Spotted Owl	0	9,800	9,800	9,800	9,800	12,550	12,550	10,550
EA9 Key Site Riparian	0	250	250	250	250	200	200	250
EA12 Outdoor Education	300	300	300	300	300	300	300	300
EA13 Bald Eagle	150	0	0	0	100	150	150	150
EB2 Scenic Viewshed	2,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
EB5 Pileated Woodpecker/Pine Marten	0	2,050	2,050	2,050	2,050	900	900	2,050
EB7 General Riparian	0	3,700	3,700	3,700	3,700	3,300	3,300	3,700
Subtotal E	33,875	33,875	33,875	33,875	33,875	33,875	33,875	33,875
Total	1,063,450	1,063,450	1,063,450	1,063,450	1,063,450	1,063,450	1,063,450	1,063,450

[1] *An additional 700 acres of non-federal land occurs within the boundaries of existing Wilderness.*

All alternatives except NC propose three research natural areas within Wilderness boundaries. The acreage for those RNAs is reflected in allocations A3 and DA3.

[2] *An additional 4,400 acres of non-federal land occurs in the Bull Run.*

Formulation of Alternatives

The following steps were followed to develop alternatives:

Step One involved identifying Issues, Concerns, and Opportunities (ICOs). The ICOs were used to determine what resource information and other data were needed to solve them.

Step Two involved the collection of resource information and the development of resource maps.

Step Three combined resource information such as soils, slope, vegetation, etc. onto a single overlay and like characteristics were aggregated into groups called Analysis Areas. Analysis Areas are tracts of land assumed to be homogeneous in terms of outputs and effects.

Step Four developed management direction that could be applied to the ground in various combinations to resolve the ICOs. This management direction is in two broad forms: Forestwide Standards and Guidelines; and Management Area Category Standards and Guidelines and Prescriptions.

Step Five involved the actual formulation of alternatives. An alternative is one approach to managing the land and resources of the Forest. Each alternative employs a different array of management areas to achieve its goal. By assigning different mixes of management areas to various portions of the Forest, a unique combination of resource outputs and environmental conditions is produced.

Step Six entered alternative designs into the Forest planning model (FORPLAN). FORPLAN is a linear programming computer model. Given the assignment of strategies to the land, the FORPLAN model selected the best set of Management Prescriptions to meet the overall alternative goals and objectives.

Each alternative presents a combination of management areas where sets of management practices occur. Some management areas emphasize protection of wildlife habitat and naturally-occurring ecosystems, while other emphasize sustained timber yields or various types of recreation opportunities. Each alternative distributes Forest lands to management areas in different ways. These are listed by acreage in Table S-1.

The Preferred Alternative is that alternative which is selected from all those formulated as the one which best maximizes the net public benefits. The actual selection of the Preferred Alternative is done by the Regional Forester.

The dropping of Alternatives B, D and G was the major change made between draft and final EIS. After looking at the range of outputs of all the alternatives, it appeared that these alternatives were similar enough to other alternatives that they did not need to be analyzed in detail. In addition, there was little public comment received on some and the issues addressed by them were felt to be adequately addressed by the other alternatives. Based on public comment, a new preferred alternative was developed.

The following narrative and subsequent Table S-2 Indicators of Responsiveness, summarize these differences between alternatives.

Management Area Category Definitions

Category A

Management activities in Category A management areas are designed to meet specific resource objectives other than timber production and often are designed to result in near natural conditions over time.

These areas generally have no regulated timber harvest. Timber salvage operations may be permitted under certain conditions or restrictions. However, the total amount of salvage volume from areas A2 thru A12 is not expected to exceed 1 MMBF/year under any of the alternatives considered in detail.

Category B

Management objectives in Category B management areas are designed to achieve specific resource objectives while achieving an objective of promoting a healthy, growing forest through management for timber. These management areas have additional restrictions regarding rate of harvest, sizes of openings, and minimum rotations.

Category C

Management activities in area C1 are designed primarily to provide wood products needed to meet national demand, and to support local communities dependent on timber for employment, while achieving the objective of promoting a healthy, growing forest mosaic through timber harvest. These objectives are achieved while concurrently being sensitive to, and managing for, the other forest resource uses and values including transitory forage production and public recreation use.

Category D

This category is used for lands within the Bull Run Watershed Planning Unit.

Category E

This category is used for lands within the boundaries of both the Columbia River Gorge National Scenic Area and the Mt. Hood National Forest.

The No Change Alternative - NC

This alternative responds to the Regional direction to project the most likely condition of the Forest in the future if current management practices and policies are not changed, and analytical techniques and legal requirements remained as they were when the existing Timber Management Plan was adopted in 1978. As such, this alternative predates the National Forest Management Act regulations, 36 CFR Part 219, of 1979.

The outputs and effects displayed for Alternative NC are based on a FORPLAN run that incorporates the allocations and management direction contained in the 1978 TM Plan and Unit Plans. Although this alternative is based on allocations and management direction contained in existing unit plans and the 1978 Timber Management Plan, it uses updated resource information to make estimates of the outputs and effects. This allows a better comparison of Alternative NC to the other alternatives. The updates most apparent are in the new tentatively suitable timber land base and timber yield tables derived from a recent timber inventory.

The No Action Alternative - A

This is the "No-Action" Alternative, which is required by the National Environmental Policy Act (NEPA) and the National Forest Management Act (NFMA). With differences indicated below, it projects today's Forest management into the future. This provides a basis for comparison when evaluating the range of alternatives.

Alternative A is based upon and is essentially the same as the No Change Alternative. The major difference is that this Alternative fully incorporates all NFMA requirements, including the Management Requirements (MRs).

Alternative A is designed to present estimates of the outputs and effects of managing the Forest under current plans and practices, adjusted as required by new laws and regulations, including meeting the MRs for wildlife species and soil and water resources, and incorporating new timber suitability criteria. Alternative A would permit a variety of existing uses to continue, including present timber management practices. This alternative projects results of managing in the future without regard to public issues or management concerns that have arisen since existing plans were approved, aside from the MRs. The cost of alternative A is within existing budget requests.

Alternative C

This alternative was developed in response to the public issues concerning adequate timber supplies and community stability. It would provide maximum timber harvest consistent with resource protection provided by management requirements. Alternative C most closely approximates the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) program for the Mt. Hood National Forest. Under Alternative C all land suitable for growing trees would be managed for intensive timber production. Timber harvesting would be on a regularly scheduled basis in the Bull Run Watershed.

A major feature of this alternative is the large amount of acres allocated to timber emphasis and a corresponding decrease in the unroaded and scenic viewshed allocations.

Alternative E

This was the Forest's preferred alternative in the draft EIS. It was developed to reflect present land uses while meeting management requirements. It is based on an assumption that past determinations of management emphasis in previous plans are still generally valid and effective when also reflecting the most recent laws and scientific information. This alternative reflects more recently identified needs to reduce timber harvest levels on some portions of the Forest in response to the public issues of water quality, fish and wildlife, and recreation. It also emphasizes the values of particular scenic corridors. Recreation of all kinds would be available and its quality would meet public demands. Timber would be managed intensively where such intensive management has been planned in the past, including seven of the presently unroaded areas. Timber harvest would often be used to help achieve other Forest objectives. In response to the community stability public issue, the timber harvest schedule would be a departure which emphasizes production of volume above this alternative's long-term sustained yield quantity.

Alternative F

This alternative was developed as a particular response to the recreation public issue, especially the visual

quality aspects of the issue. It is designed to meet the needs of visitors to the Forest for outdoor recreation in natural settings. Its main objective is to provide scenic landscapes that are visible from the Forest's travel routes and recreation areas. Under this alternative, the emphasis of management would be on providing a wide range of roaded and unroaded recreational settings and opportunities. Natural appearing conditions would be perpetuated by periodic removal of small volumes of timber in areas that are visible. Higher levels of timber harvest would take place in areas of the Forest that are seldom seen. Benefits to wildlife and fish habitat would occur because of management of the land for scenic quality.

Alternative H

Alternative H is developed to supply recreational opportunities in primitive or natural settings, away from roads and other major evidence of human activity. It precludes future development in all presently unroaded areas and in places on the Forest adjacent to Wildernesses and unroaded areas that also offer primitive and semi-primitive nonmotorized recreation opportunities. Alternative H would also preserve the most existing old growth timber stands. Retaining old growth would provide complementary benefits for fish and wildlife habitats, and maintain or improve scenic quality. Timber would be harvested in areas where it has been removed in the past, and where it would not conflict with the needs of dispersed recreational activities.

Alternative I

Alternative I is developed primarily to provide for wildlife and fish habitat needs. In all areas considered important for fish and wildlife habitat, stocking objectives would be achieved by precluding timber harvest, extending rotations or otherwise modifying timber management practices. The needs of animal species which require open areas would be met by continued timber harvest elsewhere on the Forest. All unroaded areas would be kept free of roads to provide the security for wildlife as well as opportunities for recreation in an unroaded setting and for future wilderness designation. The retention of natural appearing landscapes throughout the Forest would be emphasized.

Alternative Q

This is the Forest Service preferred alternative. It is a new alternative and was not displayed in the draft EIS. Beginning with the draft EIS preferred alternative (E), alternative Q was developed to respond to public comment and new information. This alternative reflects more recently identified needs to reduce timber harvest levels on some portions of the Forest in response to the public issues of water quality, fish and wildlife. It also emphasizes the values of particular scenic corridors. Recreation of all kinds would be available and its quality would meet public demands. Timber harvest would often be used to help achieve other Forest objectives.

Summary of Results Related to the Planning Issues

The following table summarizes the outputs of the alternatives as they relate to the planning issues. Items shown are the indicators of responsiveness associated with each issue.

Key Changes Between Draft and Final EIS

- Costs were reviewed and updated.
- New Timber Inventory incorporated and new yield tables developed.
- Timber Suitability was remapped.
- Updated recreation growth projections from State of Oregon were utilized.
- Spotted owl direction contained in Regional Guide is incorporated into FEIS.
- Big game management standards have been clarified.
- Pine Oak Management area goals and standards were clarified.,
- Threatened and endangered species management direction was made site specific.
- Roadless Area acreage was updated.
- Several Back Country Lakes to be protected.
- Visual Quality Acres to be protected have increased.
- Special Emphasis Watersheds to be protected increased.
- Acres allocated to timber emphasis decreased.
- Acres in Earth Flow Management Plan updated.

Table S-2 Indicators of Responsiveness of Alternatives to Major Issues

Indicators of Responsiveness		Alternative							
		NC (No Change)	A (No Action)	C (RPA)	E (Draft Pre-ferred)	F	H	I	Q (Preferred)
Timber									
Ave. Annual Vol. Offered First Decade:									
Allowable Sale Quantity Million Cubic Feet/Year		51.6	38.9	46.4	53.4	25.5	18.0	27.5	31.9
(million board feet)/Year		(313)	(235)	(282)	(317)	(154)	(108)	(165)	(189)
Timber Sale Program Quantity Million Cubic Feet/Year		58.8	44.3	52.9	60.9	29.1	20.5	31.3	36.4
(million board feet)/Year		(357)	(268)	(320)	(361)	(176)	(123)	(188)	(215)
Long term Sustained Yield Cap. Million cubic feet/Year		51.6	38.9	46.4	37.5	25.8	18.0	27.5	31.9
Communities									
Ave. Annual Payments to Counties (Millions $)		12.0	8.9	11.0	11.8	5.8	4.0	6.1	6.8
Old Growth									
Acres of Existing Old Growth-Remaining After 50 yrs. (1000s)		186	225	205	224	262	290	272	255
Potential Old Growth Including Ingrowth After 50 Years		401	444	422	430	493	523	500	475
Management Indicator Species									
Spotted Owl # of Pairs 1st Decade		166	171	167	167	173	175	173	173
Deer/Elk # 1st Decade (1000s)		D-17.4 E-4.9	D-18.3 E-5.1	D-17.4 E-4.9	D-24.1 E-6.5	D-24.9 E-6.7	D-28.2 E-7.3	D-27.4 E-7.1	D-28.2 E-7.4
Recreation Activities									
Dispersed (MM RVD's)									
Primitive	Demand	.899	.899	.899	.899	.899	.899	.899	.899
	Supply	.144	.144	.144	.144	.144	.144	.151	.144
Semi-primitive	Demand	1.349	1.349	1.349	1.349	1.349	1.349	1.349	1.349
Non-motorized	Supply	.108	.172	.138	.217	.312	.227	.333	.248
Semi-primitive	Demand	.674	.674	.674	.674	.674	.674	.674	.674
Motorized	Supply	.038	.028	.005	.020	.035	.021	.091	.027
Roaded Natural	Demand	4.946	4.946	4.946	4.946	4.946	4.946	4.946	4.946
	Supply	2.165	3.274	2.119	3.841	5.055	6.658	7.450	5.037
Road Modified	Demand	3.372	3.372	3.372	3.372	3.372	3.372	3.372	3.372
	Supply	6.327	4.816	6.376	4.007	2.035	1.481	0.251	2.381

Table S-2 Indicators of Responsiveness of Alternatives to Major Issues (continued)

Indicators of Responsiveness		Alternative							
		NC (No Change)	A (No Action)	C (RPA)	E (Draft Pre-ferred)	F	H	I	Q (Preferred)
Rural	Demand	11.016	11.016	11.016	11.016	11.016	11.016	11.016	11.016
	Supply	.916	.916	.923	.931	.793	1.075	0.806	0.909
Scenic Quality									
Expected Visual Condition After 50 years									
Viewsheds Appearing Natural		6	7	1	8	15	21	10	12
Viewsheds Appearing Slightly Altered		6	5	1	13	25	21	17	22
Roadless Areas									
Acres Remaining Unroaded (50 Yrs) (1000s)		57	57	34	68	109	111	114	81
Areas Remaining Unroaded (50 yrs)		3	3	2	3	9	9	10	6
Fish Habitat/Water Quality									
Acres Managed to Meet Riparian-Objectives (1000s)		309	474	374	517	577	769	605	591
Acquatic Habitat Stability Index (1st Decade)		4.0	6.0	4.4	5.9	7.1	7.9	7.4	6.7
Supply of Developed Recreation Oppotunities									
Million RVD's		3	3	3	3	3	3	3	3
Wild/Scenic/Recreation Rivers									
No. of Rivers Studied for Eligibility		12	12	12	12	12	12	12	12
Deer & Elk Management		See Management Indicator Species Above							

- Five Rivers have been designated as Wild/Scenic/or Recreational Rivers.
- The Northern Spotted Owl was listed as "Threatened" in July 1990 by U.S. Fish and Wildlife Service.
- A new preferred alternative was developed.
- Portions of eleven rivers were found eligible for Wild, Scenic and Recreational River status.

Detailed Description of the Preferred Alternative

Highlights from the Preferred Alternative are as follows:

Timber Supply

Produce as much timber as possible on C1 lands. Generally, use intensive practices such as planting and thinning where economically efficient to do so. Produce timber in accordance with other resource objectives on B lands. Offer an allowable sale quantity of 189 mmbf/year.

Old Growth

Some old growth in special interest areas, roadless areas, and other small areas would be set aside from regulated harvest.

Scenic Quality

Assure that at least 34 of the Forest's 46 most sensitive viewsheds do not appear more than slightly altered in 50 years.

Wildlife

Deer and Elk

Under this alternative, standards and guidelines for deer and elk winter range would be incorporated, as well as additional management protection provided through land allocations B10 and B11. This alternative would produce a stable and continual population of deer and elk across the Forest. A moderate per square mile deer and elk density would be managed for. Some critical summer and winter range would be identified for intensive management.

Merriam's Turkey and Silver-Gray Squirrel

Under this alternative, standards and guidelines for Merriam's turkey and silver gray squirrel will be incorporated (land allocation B4). This alternative would manage for suitable nesting and roosting habitat across the pine/oak habitat found on the eastern portion of the Forest. This alternative would produce a stable and continual population of turkey and squirrel on the Forest.

Other Management Indicator Species

Under this alternative, the Regional Management Requirements (MR) for pileated woodpecker and pine marten would be met. Management will consist of 96 MR areas for pileated woodpecker and 231 MR areas for pine marten (land allocation B5). Each of the MR areas for pileated woodpecker will consist of at least 600 acres of suitable habitat with a 300 acre contiguous core of old growth or mature timber. Pine marten MR areas will consist of at least 320 acres of suitable habitat with a 160 acre core of contiguous old growth or mature timber. The numbers of MR areas managed will remain constant throughout decade 5. Additional protection of suitable habitat will be provided through land allocations for Wilderness areas and SOHA's.

Threatened and Endangered Species

This alternative would meet the management requirements for bald eagles, peregrine falcons and spotted owls.

Bald eagle habitat areas would be provided under this alternative (land allocation A13).

Under this alternative spotted owl management as defined in the preferred alternative of the Final Supplemental Environmental Impact Statement to the Pacific Northwest Regional Guide would be implemented. Sixty-six management areas would be maintained, each containing 1,500 acres of suitable spotted owl habitat.

Fish Habitat and Water Quality

This alternative would provide for substantial, long-term increases in Forestwide riparian resource (fish habitat and water quality) capabilities.

This alternative would also implement substantial increases in land allocations to riparian and watershed land allocations.

This alternative is responsive to concerns about riparian areas and watersheds. Portions of eighteen watersheds totaling approximately 78,600 acres would be designated as special emphasis watersheds. An additional 33,400 acres within the eighteen watersheds will be afforded equal or greater protection within other allocations including A2-Wilderness, B2-Scenic Viewshed, and B8-Earthflow designations, etc. About 16,650 acres would be allocated to key site riparian management areas.

Recreation

A "standard" level of service is to be provided. This is intended to meet the demands of the public in a manner which is responsive to changing desires over time relative to the quality of recreational services and facilities provided. Maintain the ability to supply at least the following Recreation Visitor Days (RVDs) through the year 2030.

- Primitive (144,000)
- Semi-primitive Motorized (248,000)
- Semi-primitive Nonmotorized (27,000)
- Roaded Natural (5,037,000)
- Roaded Modified (2,381,000)
- Rural (909,000)

Roadless Areas

Harvest timber in all of the Badger Creek and parts of the Salmon-Huckleberry, Bull of the Woods, and Mt. Hood additions. The majority of Twin Lakes, Wind Creek, Eagle, Lake, Roaring River, Larch Mtn., and Olallie will remain unroaded.

Communities

This alternative responds somewhat to those communities that are highly dependent on wood products industry jobs. It would provide a level of timber harvest which could support many jobs, but which would be lower than recent levels. Payments to counties would be moderately high.

This alternative would respond fairly well to the needs of those communities where recreation is an important part of the economy. It would provide a high level of recreation, and also protect some of the highest quality recreation opportunities on the Forest, thereby helping the growth of the recreation industry.

Wild and Scenic Rivers

The following rivers were all found eligible for consideration as Wild and Scenic Rivers under the Wild and Scenic Rivers Act. Interim protection of the river corridor and area viewed from the river and major travelways along the river would continue until it is determined that the river is not suitable for inclusion into the national system, or for rivers found suitable for at least 3 years subsequent to submittal of recommndations to Congress..

- Middle Fork of the Hood River
- A portion of the Zigzag River
- Eagle Creek in Clackamas County
- North Fork of the Clackamas River
- A portion of the South Fork of the Clackamas River
- Fish Creek
- South Fork of the Roaring River
- A portion of the Oak Grove Fork of the Clackamas River
- Collawash River
- North Fork of the North Fork of the Breitenbush River

The East Fork of the Hood River was found eligible but would not be recommended for designation under the Wild and Scenic Rivers Act. In the corridor of segment two, Stringer Meadows Special Interest Area would be designated around the wet meadow complex which was the identified outstandingly remarkable value for the river segment. The purpose of the Special Interest Area would be to protect and interpret important meadow values. The remainder of the segment would be in management area A11 and would be open to a range of ski area management activities.

Suitability studies on the remaining eligible rivers should be completed within 5 years from the release of this plan.

Alternatives' Response to Public Issues

Alternative management plans were designed to address the Public Issues in different ways. Alternatives can best be compared to each other by identifying how well each alternative responds to all of the Public Issues. The "Indicators of Responsiveness" to the Public Issues, are described in Table S-2.

The following figures highlight the differences between alternatives for selected issue areas.

Timber

Figure S-2 Long Term Sustained Yield Capacity

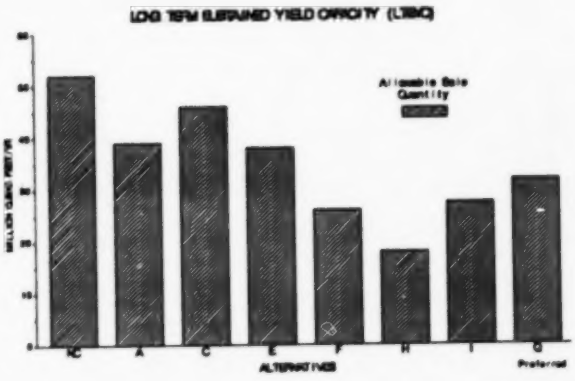
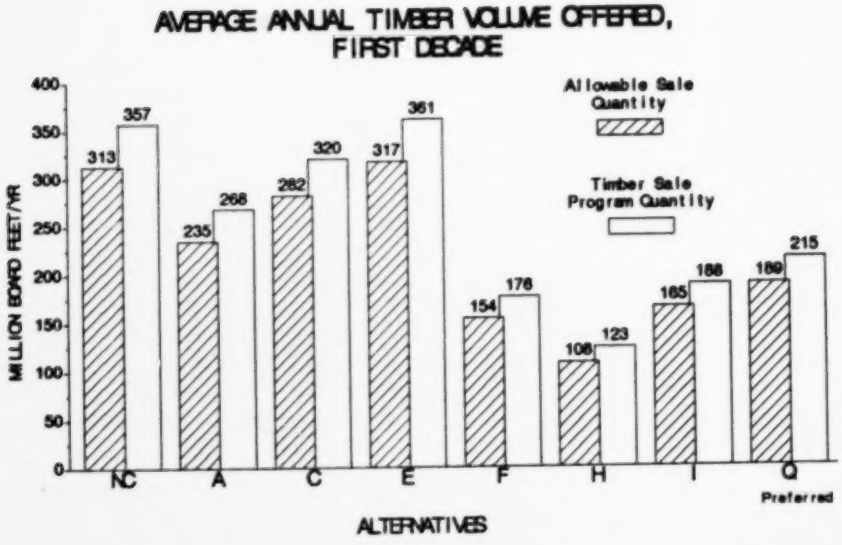
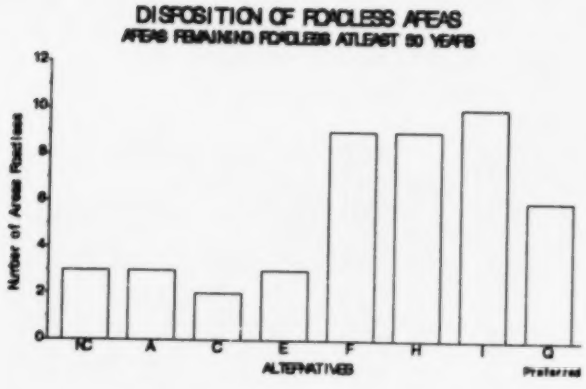


Figure S-1 Average Annual Timber Volume Offered, First Decade



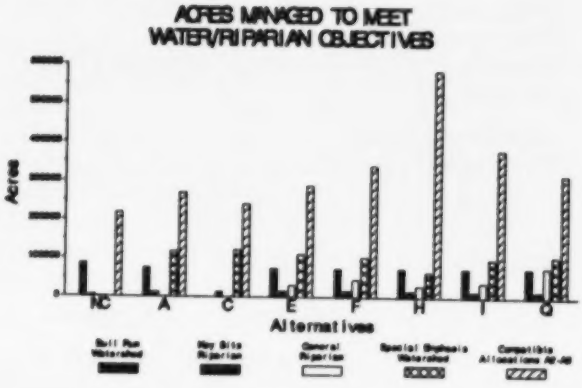
Roadless Areas

Figure S-3 Areas Retaining Unroaded Characteristics at Least 50 Years



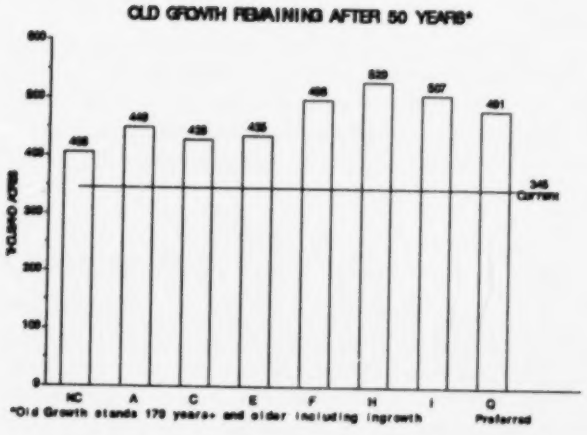
Riparian Management

Figure S-5 Acres Allocated to Riparian Management



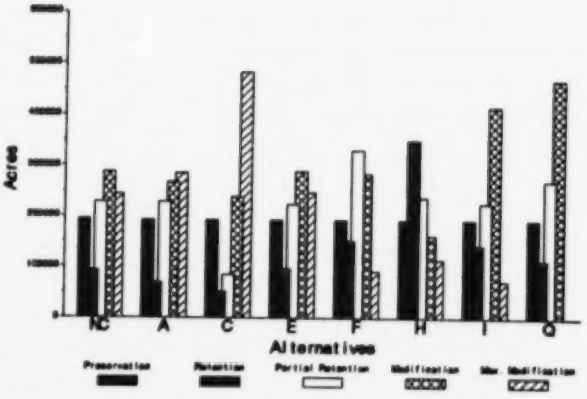
Old Growth

Figure S-4 Old Growth Remaining After 50 Years*



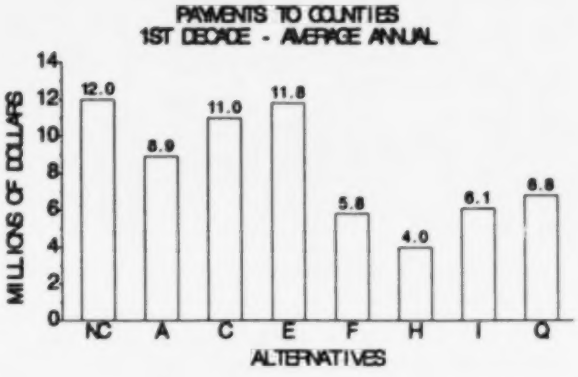
Visual Quality

Figure S-6 Acres in Each Visual Quality Objective



Community Stability

Figure S-7 Payments to Counties 1st Decade - Average Annual



Environmental Consequences of the Alternatives

Chapter IV of this FEIS addresses the potential environmental consequences of implementing each alternative on the various environmental components. The discussion focuses on direct, indirect, and cumulative effects.

All effects disclosed in this chapter assume complete compliance with the Standards and Guidelines summarized in the Forest Plan, Chapter 4 and Appendix H of the FEIS. Environmental consequences would be far more severe, or unacceptable, in the absence of Standards and Guidelines and accompanying Best Management Practices (BMPs). These Standards and Guidelines contain many of the mitigation measures that avoid, minimize, reduce, or eliminate probable or potential environmental impacts.

Selected items are presented here:

Soil/Sedimentation

Timber harvesting and road construction increase the potential for soil erosion and the resulting sedimentation of forest streams. Alternatives with larger amounts of timber harvest will have greater potential to increase erosion and sedimentation. (See timber discussion for comparison of timber harvest levels.)

Figure S-8 Index of Delivered Sediment, 1st Decade

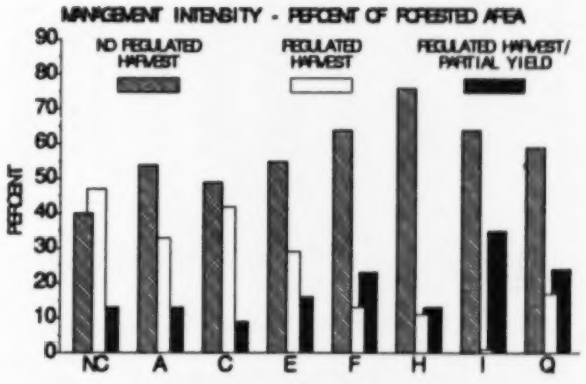
Vegetation

Quantitative changes in age classes, seral stage, and general character of vegetation on timber-suited land will vary by alternative. Alternatives vary by the way land is allocated to various Management Areas. The management areas can be grouped as timber emphasis, reduced timber yield, or no regulated harvest. Human-caused changes in vegetation would be greatest in management areas with full timber yield and would be least in management areas with no regulated harvest. Alternatives with higher proportions of the Forest allocated to mangement areas with full or partial yield would cause relatively more change to forestwide vegetation.

Table S-3 Predicted Change in Vegetation - 5th Decade - Percent of Forested Area

Age Groups (years)	Existing Condition	Alternative							
		NC	A	C	E	F	H	I	Q (Preferred)
0-29	8	12	10	11	9	6	5	7	9
30-69	7	17	15	17	17	13	12	13	14
70-119	22	7	7	7	7	7	7	7	7
120-169	26	21	21	20	21	21	21	19	19
170 +	37	43	47	45	46	53	56	53	51

Figure S-9 Management Intensity - Percent of Forested Area



Old Growth

Timber harvest as prescribed by the various alternatives affects the amount of old growth retained on the Forest. When a stand of old growth is harvested, the characteristics and values which make it old growth are gone. Acres of existing old growth remaining in each alternative after fifty years are shown in Figure S-10.

All alternatives retain, at a minimum, the old growth within withdrawn areas, including the Wildernesses and Research Natural Areas. Old growth may also be retained in several of the management areas which do not provide for scheduled timber harvest, in addition to those acres protected in the old growth prescription. All management areas with no harvest potentially have younger stands which could, in time, develop old growth characteristics.

Those allocations without timber harvest will be effective in maintaining old growth character. Some alternatives provide for more no-harvest areas than others. There are no effective measures against natural catastrophes from insects, disease or wildfire.

Figure S-10 Acres of Existing Old Growth Remaining after 50 Years

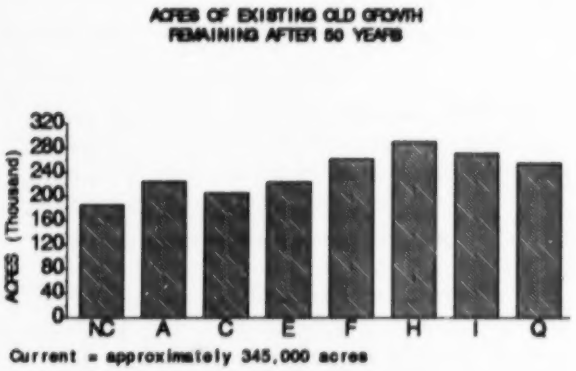
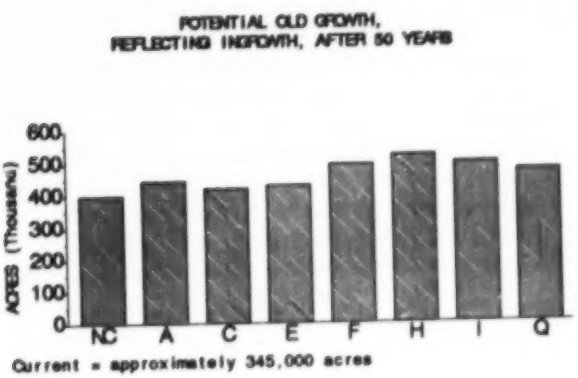


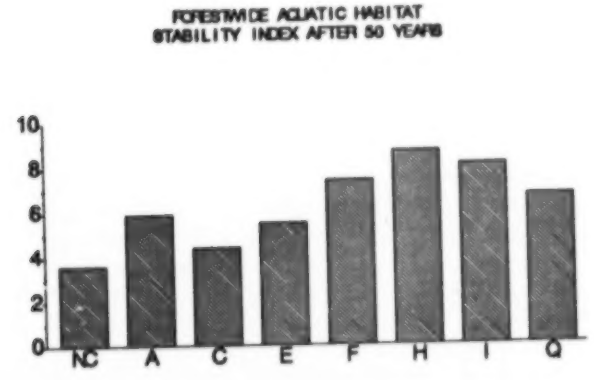
Figure S-11 Acres of Potential Old Growth, Including Ingrowth, Existing after 50 Years



Aquatic Resources

The impacts of management activities are assessed on two major aquatic resources: fish habitat and water quality. The Forest's aquatic resources are affected by all alternatives due to the disturbance of soil and vegetation, which indirectly affects the hydrologic and riparian resources. An aquatic Habitat Stability Index was used to estimate future aquatic ecosystem stability. The higher the index, the better the condition of the habitat.

Figure S-12 Forestwide Aquatic Habitat Stability Index After 50 Years

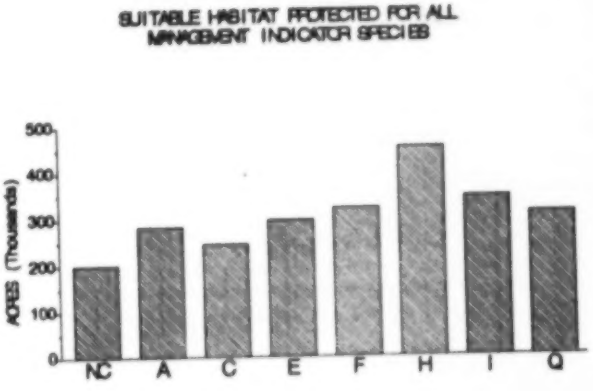


Wildlife

The main effects of the alternatives on wildlife would occur from changes in habitat types and in diversity of forest condition classes. Changes in habitat result in changes in populations of associated species. No single set of habitat conditions can be "best" for all wildlife species. To evaluate effects on wildlife, the impacts on each species or group of species (as represented by an indicator species) was determined.

Because different animal species respond differently to changes in habitat types and forest condition classes, the effects of the alternatives are primarily displayed by indicator species. Species that are dependent upon habitat conditions similar to those of the indicator species are expected to be affected in a similar manner and degree to the indicator species.

Figure S-13 Suitable Habitat Protected for all Management Indicator Species



Visual Resource

The management activities that would affect the visual resource are primarily timber harvest activities and road building. All management activities are guided by Visual Quality Objectives (VQOs) designed to blend the activity with the natural landscape character so that the effects are within acceptable limits. Figure S-6 displays the VQOs that would be associated with each alternative. Land assigned the Preservation VQO would be natural appearing. Retention areas would appear unaltered to the casual viewer, Partial Retention areas would

appear slightly altered, and the Modified areas would appear moderately to substantially altered.

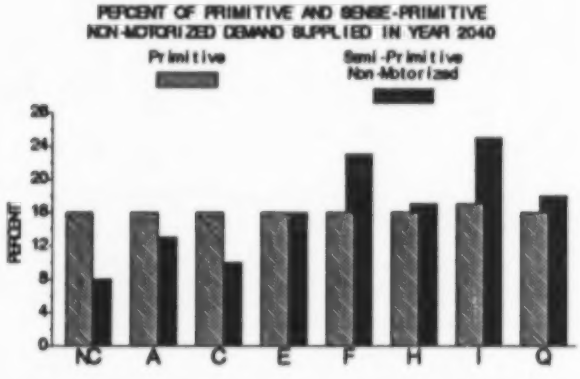
Implementing the visual management system is expected to be effective - unit size, percent of openings, and target tree sizes are provided.

Recreation

Although some recreational activities such as camping can occur in almost any recreation setting, many people choose different recreation settings for different recreation experiences. The Recreation Opportunity Spectrum (ROS) describes the different settings in terms of the recreation experiences these settings can offer. Refer to Chapter III for definitions of the ROS classes.

Vegetative manipulation, timber harvest, road construction, and access management are major activities that affect recreation settings. For example, roading and timber harvest increases access for motorized travel, but at the same time they affect the "naturalness" of an area and discourage those seeking a nonmotorized experience in a natural environment. The changes in recreational settings vary by alternative according to different levels of timber harvest and road construction.

Figure S-14 Percent of Primitive and Semi-primitive Nonmotorized Demand Supplied in Year 2040



Probable Adverse Environmental Effects That Cannot be Avoided

Implementation of any of the alternatives will inevitably result in some adverse environmental effects that cannot be avoided. The degree of severity of the adverse effects can be minimized by adhering to the direction in the management prescriptions and Forestwide Standards and Guidelines in Chapter IV of the Forest Plan, but some impacts generally cannot be avoided if any management activities occur.

Soil disturbance occurs as a result of timber harvest slash treatment, wildfires, and construction of utility corridors, roads, trails, and recreation sites. Both the technique and the scheduling of management activities can affect the kind and amount of impact that can occur on soil resources. This is also true for water resources. Short-term effects on water are a result of management activities such as timber harvest, wildfire, livestock use, and recreation use.

Effects on visual quality are generally of a short-term nature from activities such as timber harvest. Long-term effects on scenery would be from wildfire, roads, and utility corridors.

Air quality may be temporarily degraded in localized areas by both prescribed fire and wildfire. Wildlife can be adversely affected by fire, small hydro development, and timber harvest activities. And finally, it is likely that some significant cultural resource sites will inadvertently or unavoidably be disturbed.

Short-Term Uses vs Long-Term Productivity

The relationship between the short-term uses of man's environment and the maintenance and/or enhancement of long-term productivity is complex. For the purposes of this assessment, short-term uses are those that generally occur on a yearly basis on some area of the Forest, such as timber harvest as a use of the wood resource, livestock grazing as a use of the forage resource, and recreation and irrigation uses of the water resource.

"Long-term" refers to longer than a 10 year period. Productivity refers to the capability of the land to provide market and amenity outputs and values for future generations. For example, maintenance of long-term soil productivity requires that activities which cause excessive erosion, compaction, and other adverse impacts to soil be mitigated. Occasionally short-term uses will cause substantial damage to isolated areas. Direction in Chapter 4 of the Forest Plan contains management requirements designed to protect soil and water resources so that long-term productivity is not significantly impaired.

Irreversible or Irretrievable Commitment of Resources

Acres committed to roads and facilities constitute an irretrievable loss of vegetative production and an irreversible loss of soil productivity. When roadless areas are developed they represent an irreversible effect on the roadless values associated with them.

Timber resources can be irretrievably lost by being dedicated as old growth or by being located within designated wilderness. Insects, disease and fire can also cause irretrievable losses. Use of mineral and energy resources can have both irreversible and irretrievable effects.

Acronyms and Abbreviations Used in This Document

AMP	Allotment Management Plan
AMS	Analysis of the Management Situation
AQRV	Air Quality Related Value
ARP	Aggregate Recovery Percent
ASQ	Allowable Sale Quantity
ATV	All Terrain Vehicle
AUM	Animal Unit Month
BF	Board Foot
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practice
BPA	Bonneville Power Administration
BTU	British Thermal Unit
CEQ	Council on Environmental Quality
CF	Cubic Feet
CFL	Commercial Forest Land
CFR	Code of Federal Regulations
CMAI	Culmination of Mean Annual Increment
CRGNSA	Columbia River Gorge National Scenic Area
CRITFC	Columbia River Inter-tribal Fish Commission
DBH	Diameter at Breast Height
DEIS	Draft EIS
DEQ	Department of Environmental Quality (Oregon)
DFSIM	Douglas Fir Growth and Yield Simulator
DP-DFSIM	Dynamic Programing version oDouglas Fir Growth and Yield Simulator
EA	Environmental Analysis
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final EIS
FERC	Federal Energy Regulatory Commission
FMAZ	Fire Management Analysis Zone
FONSI	Finding Of No Significant Impact
FORPLAN	Forest Planning Model
FPFO	Forestry Program for Oregon
FS	Forest Service
FSH	Forest Service Handbook
FSM	Forest Service Manual
FY	Fiscal Year
GIS	Geographic Information System
HCI	Habitat Capability Index
ICO	Issues, concerns, and Opportunities
ID	Interdisciplinary
IDT	Interdisciplinary Team
IMPLAN	Input/Output Model
KGRA	Known Geothermal Resource Area
KV	Knutson-Vandenburg
LOD	Large Organic Debris
LRMP	Land and Resource Management Plan
LTI	Legal Trout Index
LTSY	Long Term Sustained Yield
LTSYC	Long Term Sustained Yield Capacity
M	Thousand
MA	Management Area
MAUM	Thousand Animal Unit Month
MBF	Thousand Board Feet
MCF	Thousand Cubic Feet
MIS	Management Indicator Species
MM	Million
MMBF	Million Board Feet
MMCF	Million Cubic Feet
MMRs	Minimum Management Requirements
MOM	Mature and OverMature
MOU	Memorandum of Understanding
MR	Management Requirement
MRVD	Thousand Recreation Visitor Days
MTHNF	Mt. Hood National Forest
MWFUD	Thousand Wildlife/Fish User Day
NA	No Action
NC	No Change
NDF	Nondeclining Flow
NEPA	National Environmental Policy Act
NF	National Forest
NFMA	National Forest Management Act
NPB	Net Public Benefits
ODFW	Oregon Department of Fish and Wildlife
ORC	Oregon Rivers Council
ORV	Off Road Vehicle
PAOT	Persons at One Time
PCNST	Pacific Crest National Scenic Trail
PL	Public Law
PM10	Particulate Matter less than 10 microns in size
PNV	Present Net Value
PNW	Pacific Northwest
PRIA	Public Rangelands Improvement Act
R6	Region 6 (Pacific Northwest Region,USDA Forest Service)
RAREII	Roadless Area Review and Evaluation II
RIM	Recreation Information Management
RM	Roaded Modified
RN	Roaded Natural
RNA	Research Natural Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
RPA	Forest and Rangeland Renewable Resources Planning Act of 1974
RVD	Recreation Visitor Day
S&G	Standard and Guideline
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SEIS	Supplement to the EIS for an Amendment to the Pacific Northwest Regional Guide, Spotted Owl Guidelines.
SHCI	Smolt Habitat Capability Index
SHPO	State Historical Preservation Officer (Office)
SIA	Special Interest Area
SIC	Standard Industrial Classification
SMU	Streamside Management Unit
SOHA	Spotted Owl Habitat Area
SPM	Semiprimitive, Motorized
SPNM	Semiprimitive, Nonmotorized
SRI	Soil Resource Inventory
T&E	Threatened and Endangered
TSI	Timber Stand Improvement
TSP	Total Suspended Particulates
TSPQ	Timber Sale Program Quantity
USF&W	United States Fish & Wildlife Service
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USGS	United States Geological Survey
VAC	Visual Absorption Capacity
VMS	Visual Management System
VQL	Visual Quality Level
VQO	Visual Quality Objective
WFUD	Wildlife & Fish User Day
WRS	Wilderness Resource Spectrum
WSR	Wild and Scenic River

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